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## **Is the stressor criterion dispensable?: a contribution to the criterion A debate from a Swiss sample of survivors of the 2004 tsunami**

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**Abstract:** **BACKGROUND:** The stressor criterion (criterion A) in the DSM-IV diagnosis of posttraumatic stress disorder (PTSD) is frequently questioned. To explore the clinical and diagnostic usefulness of criterion A, we examined its value in predicting and capturing PTSD symptom clusters (criteria B-D) in a sample of trauma survivors. **METHOD:** We studied 342 adult German-speaking Swiss tourists affected by the 2004 tsunami. We analyzed sensitivity and specificity, predictive value and variance explanation of criterion A for evoking PTSD criteria B-D. **RESULTS:** Sensitivity of criterion A for PTSD criteria B-D was 93.2%, while positive predictive value was 23.1%. Criterion A made a small, yet statistically significant contribution of 7.5% for PTSD symptom clusters B-D. **CONCLUSION:** The assessment of criterion A (A1 and A2) is not necessary for the identification of individuals suffering from PTSD symptoms according to DSM-IV. We suggest therefore that criterion A is a dispensable part of the diagnosis of PTSD.

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# Is the Stressor Criterion Dispensable?

A Contribution to the Criterion A Debate from a Swiss Sample of Survivors of the 2004 Tsunami

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## Key Words

Tsunami • Trauma • Posttraumatic stress disorder •  
Criterion A

## Abstract

**Background:** The stressor criterion (criterion A) in the DSM-IV diagnosis of posttraumatic stress disorder (PTSD) is frequently questioned. To explore the clinical and diagnostic usefulness of criterion A, we examined its value in predicting and capturing PTSD symptom clusters (criteria B–D) in a sample of trauma survivors. **Method:** We studied 342 adult German-speaking Swiss tourists affected by the 2004 tsunami. We analyzed sensitivity and specificity, predictive value and variance explanation of criterion A for evoking PTSD criteria B–D. **Results:** Sensitivity of criterion A for PTSD criteria B–D was 93.2%, while positive predictive value was 23.1%. Criterion A made a small, yet statistically significant contribution of 7.5% for PTSD symptom clusters B–D. **Conclusion:** The assessment of criterion A (A1 and A2) is not necessary for the identification of individuals suffering from PTSD symptoms according to DSM-IV. We suggest therefore that criterion A is a dispensable part of the diagnosis of PTSD.

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## Introduction

There is considerable controversy surrounding the stressor criterion (criterion A) in posttraumatic stress disorder (PTSD) [1–6]. DSM-IV [7] includes a two-part (A1 and A2) definition of trauma, which must jointly be fulfilled for a diagnosis of PTSD: criterion A1 defines the objective type of exposure and the nature of the event, and criterion A2 requires a subjective response involving ‘intense fear, helplessness or horror’.

Breslau and Kessler [8] reported an increase in the prevalence of PTSD following an expansion to criterion A. With respect to criterion A1, a higher (or at least equal) PTSD prevalence following non-A1-criterion stressors (trauma-incongruent life events) in comparison with A1-conforming events has been reported [9–12]. When considering the subjective response, Brewin et al. [13] first mentioned that some individuals fulfilling the criteria for clusters B–D of PTSD did not meet A2. In their community-based study on psychopathology following trauma, Creamer et al. [14] also found that some of those individuals who did not meet A2 persistently exhibited symptoms of PTSD. Recently, Adler et al. [15] suggested that expansion of criterion A2 is the best solution.

On the one hand, the current discussion revolves around suggestions for an expanded definition to ‘any event’, or even the omission of criterion A [16], and, in

this respect, solely the characteristic posttraumatic psychopathological symptom clusters B–D would be required for a PTSD diagnosis. On the other hand, recommendations have been put forward for a more restrictive definition of criterion A to best meet the PTSD concept [17]. However, beyond the discussion about the definition of the stressor criterion, there is little evidence for either the requirement or the clinical usefulness of criterion A in the diagnosis of PTSD.

To answer these questions, an analysis of sensitivity and specificity, predictive value and variance explanation of criterion A with respect to PTSD symptom clusters B–D is appropriate. In 2007, we collected a sample of Swiss survivors of the 2004 tsunami, and this afforded us an opportunity to analyze the clinical usefulness of criterion A (tsunami), i.e. to contribute to the debate on the value of criterion A when predicting and identifying PTSD symptom clusters B–D.

## Material and Method

### *Subjects and Procedure*

After occurrence of the 2004 tsunami on 26th December, the Swiss Federal Department of Foreign Affairs in Bern immediately set up a helpline for the duration of 1 month. A total of 3,855 addresses of missing persons, couples and families were reported to the Department of Foreign Affairs. We identified a total of 4,118 individuals. From this group of people potentially affected by the tsunami, we excluded the following: 100 deceased persons, 108 persons under 18 years of age at the time of the tsunami, 1,060 persons living either in the non-German speaking part of Switzerland or outside the country, 1,153 persons with incomplete and/or untraceable addresses and 73 persons who later turned out not to have been in the affected region at the time when the tsunami occurred. Thus, 1,624 individuals were eligible for our survey. The questionnaires were sent out in mid-May 2007. A total of 209 questionnaires were sent back by the Post Office as undeliverable. By 1st September 2007, 342 questionnaires (24.2%) had been returned and 335 were completed sufficiently for inclusion in the analysis of criterion A. The study was approved by the Ethics Committee of the canton of Zürich.

### *Measures*

Trauma exposure and symptoms of PTSD were assessed by the German version [18] of the self-report Posttraumatic Diagnostic Scale (PDS) [19], whereby participants are evaluated on the different aspects of criteria A1 and A2, and were asked to rate the frequency of each of the 17 symptoms of PTSD with respect to the 2004 tsunami. The suggestion of a PTSD diagnosis requires 1 or more 're-experiencing' symptoms, 3 or more 'avoidance' symptoms and 2 or more 'arousal' symptoms to be endorsed [19, 20]. Based on the PDS, it can be established whether or not a subject fulfils the stressor criterion A and symptom criteria B–D for the DSM-IV diagnosis of PTSD. A1 is fulfilled if at least 1 out of 4 items is reported; A2 is fulfilled according to the presence of 1 of

2 items. In our study, the PDS demonstrated high internal consistency ( $\alpha = 0.92$ ). Occurrence of physical injury and pain were assessed by visual analog scales. The involvement of relatives was detected by questions we composed ourselves.

### *Statistical Analysis*

All statistical analyses were performed using SPSS version 15.0 for Windows. We present descriptive sociodemographic characteristics, level of exposure to the tsunami and outcome data. We conducted our analysis with respect to the stressor criterion according to DSM-IV and, in addition, considered A1 and A2 individually. To analyze the clinical and diagnostic usefulness of the criterion A, sensitivity and specificity, positive and negative predictive value, as well as percentage correct of the stressor criterion for clusters B–D were calculated.

Furthermore, variance explanation of the criterion A for PTSD symptom severity (sum score of clusters B–D) was calculated by means of sequential regression analysis. In the first step, we checked for signs of any influence of the well-established protective/risk factors of sex, age, pretraumatic psychiatric morbidity (measured by pretraumatic psychotherapy) and current partnership [21, 22]. In step 2, the categorical variable presence of criterion A1 and/or A2 was entered as an indicator contrast. Thus, the effect of the presence of either or both A1 and A2 was compared to the effect of the absence of criteria A1 and A2. By visual inspection of standardized regression residuals, no outliers were detected.

Due to the extremely low incidence of missing values (missing values did not exceed 2%, with the exception of current partnership status where 4.5% were missing), missing data were dealt with by exclusion of cases from the respective analysis.

## Results

The mean age of the total sample at the time of the tsunami was  $46.7 \pm 13.6$  years (mean  $\pm$  SD, range 20–83 years). All further sociodemographic and exposure characteristics are presented in table 1. Respondents reported approximately 2 traumata prior to the tsunami (mean =  $1.8 \pm 1.7$ , range 0–8); 24.2% noted 1 trauma, 29.2% noted 2 traumata and the remaining participants noted up to 8 traumata. Seventy-seven (22.8%) respondents reported having had psychological or psychiatric treatment at some point before the tsunami occurred.

In total, 84.8% (284/335) of the respondents experienced A1; 77.0% (258/335) reported on subjective responses involving intense fear, helplessness or horror, and thereby fulfilling criterion A2. Criterion A1 was followed by A2 in 86.3% (245/284) of the respondents. Of the respondents, 73.1% (245/335) fulfilled both the objective (A1) and subjective (A2) stressor criteria, i.e. fulfilled criterion A according to DSM-IV.

A total of 55 (16.1%) respondents fulfilled diagnostic criteria A–D according to the DSM-IV definition of

**Table 1.** Sociodemographic and exposure characteristics of participants

Variable	n	%
Gender (n = 340)		
Male	180	52.9
Female	160	47.1
Marital status (n = 340)		
Single	131	38.5
Married	135	39.7
Divorced	50	14.7
Widowed	24	7.1
Exposure to the tsunami		
Direct exposure (n = 337)	178	52.8
Indirect/no exposure (n = 337)	159	47.2
Physically injured (n = 332)	164	49.4
Suffered pain (n = 328)	168	51.2
Experienced the tsunami with a close relative (n = 322)	268	83.2
Relatives went missing (n = 272)	78	28.7
Relatives were injured (n = 269)	78	29.0
Relatives died (n = 272)	44	16.2

**Table 2.** Psychometric properties of criterion A for PTSD symptom clusters B–D (n = 335)

	Sensitivity %	Specificity %	PPV %	NPV %	Percentage correct
A1A2	93.2	32.0	23.1	95.6	43.0
A1 only	98.3	18.6	20.9	98.0	32.9
A2 only	94.9	27.5	22.3	96.1	39.6

A1A2 = Criterion A according to DSM-IV; PPV = positive predictive value; NPV = negative predictive value.

PTSD. Omission of criterion A yielded a total of 59 (17.3%) respondents fulfilling PTSD criteria B–D. Of the additional 4 subjects, 3 fulfilled criterion A1 only and 1 met criterion A2 only. None of those who were A1 and A2 negative fulfilled all symptom criteria B–D suggesting a diagnosis of PTSD.

Psychometric properties of possible definitions of criterion A for PTSD symptom clusters B–D are presented in table 2.

Symptom severity according to the PDS was  $6.2 \pm 8.4$ . Sequential regression analysis was applied to detect the explanatory value of possible definitions of criterion A for PTSD symptom severity (sum score of clusters B–D).

The protective and risk factors of sex, age, pre-traumatic psychiatric morbidity (measured by pre-traumatic psychotherapy) and current partnership (step 1) resulted in a variance explanation of 2% [adjusted  $r^2 = 0.022$ ; age ( $\beta = 0.15$ ) and sex ( $\beta = 0.13$ ) reaching statistical significance]. Step 2, entering tsunami exposure (indicator contrast) into the regression equation, resulted in a significant increment in variance explanation of 7.5% with a significant contribution of A1 together with A2 only ( $\beta = 0.35$ ).

## Discussion

The results of this study suggest that the assessment of criterion A (A1 and A2) is not necessary for the identification of individuals suffering from clinically relevant symptom clusters B–D of PTSD.

Some limitations should be borne in mind when interpreting our results. Firstly, the subjective stressor criterion was assessed retrospectively and reports may be biased due to the influence of current symptom severity. Secondly, we used a self-rating instrument to assess PTSD symptoms. Although the reported sensitivity and specificity of the PDS as compared to gold-standard instruments, e.g. CAPS [23], are high, different rates of PTSD symptoms might have been found if structured clinical interviews had been used.

We found 16.1% of returned Swiss tourists reporting symptoms fulfilling criteria for PTSD 2.5 years after the tsunami. This prevalence rate is higher than rates previously reported from the general population [24] and from severely injured accident victims in Switzerland [25]. The comparatively higher PTSD prevalence of our sample could have been caused by the absence of protective factors such as immediate health care or even the additional presence of deteriorating effects such as the lack of water, food and shelter etc., which are typical of disasters in distant regions. Further, the higher PTSD prevalence could have been caused by the use of a self-rating instrument to assess PTSD symptoms. In a Swiss internet-based study on tsunami victims [26], the mean age of participants was most probably lower due to the digital divide in the use of internet technology.

Based on evidence currently available, the relevance of criteria A1 and A2 for the detection of individuals suffering from PTSD symptom clusters B–D appears to be low. Rosen et al. [27] concluded: 'Criterion A events are neither necessary nor sufficient to produce PTSD.' Our results are in line with this view. We found DSM-IV crite-

rion A to have low positive predictive and small explanatory values for PTSD symptom severity, suggesting that PTSD symptom clusters B–D possibly develop independently of the 2-part DSM-IV criterion A. An expansion of criterion A and its 2 parts was suggested as a way of solving this problem, but we found that a liberalized definition of criterion A (A1 or A2 only) provided no explanatory value for PTSD symptom severity at all. We found the clinical relevance of criterion A to be limited and ‘criterion creep’ [28] to be of no avail. The abolition of PTSD criterion A, while referring to the clinically important B–D criteria, appears to be the trail-blazing step for the future of PTSD diagnosis.

## Conclusion

We propose that clinical investigation and diagnostics include a primary search for characteristic psychopathological symptom clusters B–D fitting individuals suffering from PTSD. We suggest that due to its limited contribution to the prediction and identification of a clinically distinct entity, criterion A is a dispensable part in the diagnosis of PTSD.

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